pts, increased charge time 8 pts, device advisory 4 pts, and to preserve battery 31 pts. Changes were made during a total of 157 visits, or a mean of 2 visits/pt (range 0-7). **Conclusions:** Programming of tachycardia and bradycardia parameters are frequently performed at outpatient ICD FU. Although TTM of ICDs may be a useful adjunct for FU, it will not completely replace office visits based on the need for individualized device reprogramming.

ORAL CONTRIBUTIONS

817

Clinical Application of Cardiac Resynchronization: Implantable Cardioverter Defibrillator Therapy

Monday, March 08, 2004, 2:00 p.m.-3:30 p.m.
Morial Convention Center, La Louisiane A

2:00 p.m.

817-1 Comparative Change in the Left Ventricular Ejection Fraction in Patients Undergoing Biventricular Defibrillator Implantation Using Transvenous Coronary Sinus Versus Epicardial Left Ventricular Leads

Mandeep Bhargava, William Belden, David Burkhardt, Yaariv Khaykin, George Joseph, Atul Verma, Jenniffer Cummings, Nassir Marrouche, David O. Martin, Robert Schweikert, Walid I. Saliba, Patrick M. McCarthy, Bruce L. Wilkoff, Patrick J. Tchou, The Cleveland Clinic Foundation, Cleveland, OH

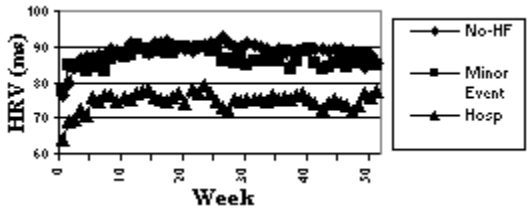
BACKGROUND: Cardiac resynchronization therapy with defibrillators (CRT-D) has proven efficacy and mortality benefit in heart failure patients with a wide QRS complex. Implantation of such devices can be achieved either using transvenous coronary sinus leads or with epicardial left ventricular leads. **OBJECTIVE:** To evaluate the comparative efficacy of epicardial LV leads with transvenous CS leads, if any, on the change in LVEF in patients receiving CRT-Ds. **METHODS AND RESULTS:** 130 consecutive patients underwent implantation of a BiV ICD. The patients were evaluated for the LVEF using transthoracic echocardiogram 1 month before the device implant and then 1-3 months after the implantation of the device. All patients included in the study had the RV lead placed at the apex and the LV lead positioned either transvenously in the posterior or lateral branch of the CS or an epicardial LV lead placed atthe corresponding surface of the heart at surgery. The patients were divided into two groups. Group I included 96 patients who underwent BiV ICD implantation using a transvenous CS lead. In this group the mean LVEF improved from 18.6±6.8% to 21.4±8.1% (p value 0.03). Group II included 34 patients with a similar device implanted using an epicardial LV lead. The LVEF in this group improved from a mean of 17.6±5.6% to 21.9±9.5% (p value 0.02). When compared for the mean LVEF pre and post procedure, there was no significant difference between the two groups (p values 0.26 and 0.36, respectively). The mean rise in the LVEF in the two groups was 1.82±5.9% in patients with CS leads and 2.4±6.1% in patients with epicardial LV leads and this was not statistically significant (p value 0.3). **CONCLUSIONS:** There is comparable improvement in the LVEF in patients treated with CRT-D using either transvenous coronary sinus leads or epicardial left ventricular leads. Epicardial LV lead placement can be safely considered for cardiac resynchronization therapy in patients undergoing open heart surgery or subsequent to a failed CS lead placement.

2:15 p.m.

817-2 Unique Diagnostics Identify Patients at Risk for Heart Failure Decompensation

Philip B. Adamson, Andrew L. Smith, William T. Abraham, Karen J. Kleckner, Melissa R. Rhodes, University of Oklahoma Health Sciences Center, Oklahoma City, OK

Background: Newer implantable CRT devices measure night heart rate (NHR) and heart rate variability (HRV) on a daily basis. This retrospective analysis examined if these device measurements were different for patients at risk for clinical events.
Methods: Heart failure decompensations were reviewed for the U.S. InSync III trial patients. Patients in NYHA III/IV heart failure without traditional pacing indications were enrolled. Patients were classified into three groups: 1) those with no decompensations (No-HF), 2) those with decompensations not requiring hospitalization (Minor event), and 3) those with decompensations requiring hospitalization (Hosp). Weekly averages of NHR and HRV were computed for the first 52 weeks post implant. Differences between groups were tested using a repeated measures analysis.
Results: There were 126, 68, and 44 pts in the No-HF, Minor event, and Hosp groups, respectively, with mean follow-up of 16.5 months. HRV averaged 89±26, 87±28, and 75±27 ms (p=.002, No-HF versus Hosp; p=.019, Minor versus Hosp). See figure. NHR averaged 69±11, 70±9, and 74±11 bpm (p=.004, No-HF versus Hosp; p=.019, Minor versus Hosp). At baseline, the Hosp group had lower beta blocker usage and higher NYHA class.



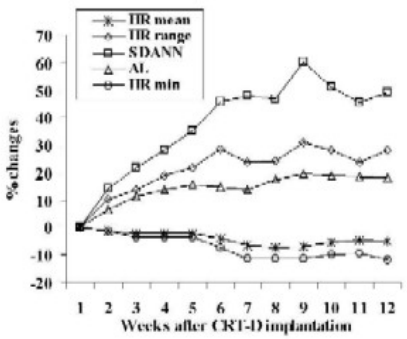
Conclusions: HRV and NHR, continuously derived from an implanted device, are different in heart failure patients at higher risk for clinical events, suggesting that HRV and NHR, in concert with traditional measures, may help stratify patients at risk for heart failure decompensation.

2:30 p.m.

817-3 Heart Rate Variability and Heart Rate Changes Induced by Biventricular Pacing in Advanced Heart Failure

Francois Regoli, Cecilia Fantoni, Francesco Giraldi, Michael Kloss, Silke Trautmann, Helmut U. Klein, Angelo Auricchio, University Hospital, Magdeburg, Germany

Background: Cardiac resynchronization therapy (CRT) is a novel therapy in patients with heart failure (HF). Weekly monitoring of mean heart rate (HR), HR range, heart rate variability (HRV), and daily physical activity of pts with CRT has not been investigated in detail.
Methods: Data stored on a CRT-D (Contak-Renewal II, Guidant, USA) implanted in 54 pts (mean age 60.6± 3.8 years, QRS 149.6 ± 6.8 msec, LVEF 19± 0.9%) with NYHA class >II despite optimal pharmacological treatment, were reviewed. Over a period of 12 weeks, changes of minimum HR (HR min), mean HR, HR range (min to max), standard deviation of mean R-R intervals (SDANN) and degree of physical activity done by each patient, measured by Activity Log Index (AL) of the device, were analysed.
Results: CRT-D determined a significant decrease of minimum and mean HR (66.2 ± 16 vs 58.5± 2.1 and 78.6± 18.2 vs 72.2± 2.8 bpm, respectively, p<0.04) and a marked increase of HR range (31.1± 11.7 vs 39.7± 9.8 bpm, p< 0.006) and SDANN (63.5± 29.4 vs 88.4± 19 msec, p<0.004). Moreover, after 12 weeks of continuous pacing, AL increased from 4.3± 1.9 to 11.2± 2.6% units (p<0.001). Changes of each parameter over 12 weeks are reported in the graph.
Conclusions: the Contak-Renewal II device allows continuous assessment of surrogate parameters of autonomic-nerve system activity. CRT-D provided a clear decrease of sympathetic activity with an increase of parasympathetic tone. Moreover, a higher degree of physical activity after 12 weeks of pacing was noted.



2:45 p.m.

817-4 Angiotensin-Converting Enzyme Inhibitors Reduce the Incidence of Implantable Cardioverter Defibrillator Therapy in Idiopathic Dilated Cardiomyopathy With Congestive Heart Failure

Fei Lu, Edmund Ang, Richard G. Trohman, David G. Benditt, Univeristy of Minnesota, Minneapolis, MN, Rush-Presbyterian-St Luke's Medical Center, Chicago, IL

Background: Clinical trials have shown favorable long-term effects of angiotensin-converting enzyme (ACE) inhibitors on morbidity and mortality in patients with congestive heart failure (CHF). ACE inhibitors may affect and modify the triggering factors and substrates of ventricular arrhythmias and sudden cardiac death in these patients. This study was aimed at examining the effects of ACE inhibitors on the incidence of defibrillator (ICD) therapy in patients with CHF secondary to idiopathic dilated cardiomyopathy (DCM).
Methods & Results: One hundred and two patients (aged 52±16 years) with idiopathic